



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,501	04/09/2004	Abdalla Aly Naem	100-15120 (P04976-P01-D01)	1418
33402	7590	03/11/2005	EXAMINER	
LAW OFFICES OF MARK C. PICKERING P.O. BOX 300 PETALUMA, CA 94953			WOJCIECHOWICZ, EDWARD JOSEPH	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/821,501

Applicant(s)

NAEM, ABDALLA ALY

Examiner

Edward Wojciechowicz

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 16, 17 and 19-24 is/are rejected.
- 7) ☒ Claim(s) 18 and 25-33 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4-9-04, 6-18-04</u>.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: ____.</p> |
|--|--|

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16, 17, and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kameyama et al (5,077,227) in view of Chu et al (6,426,265). The basic structure of the claimed bipolar transistor is shown by Kameyama with a device having a buried layer (210), an epitaxial layer (212) formed over the buried layer and with a lower dopant concentration, an intrinsic base region (240B) of a second conductivity type formed on the epitaxial layer and having a first and second top surfaces (note the U shaped intrinsic base (240B) in Fig. 3 of Kameyama where the central portion of the U shaped base can be considered one top surface, and the side arms of the U shaped base can be considered the other top surface which is vertically spaced apart), an isolation region (232A) and (232B) which is on and over the top surfaces of the base, an extrinsic emitter (250A) formed on the isolation region and aligned with a sidewall of the isolation region, and an intrinsic emitter ((260) formed in the intrinsic base region and contacting the extrinsic emitter region.

While Kameyama shows most of the claimed features of the claimed structure, Kameyama does not specifically describe an intrinsic base region formed of silicon and germanium and doped with carbon. The reference to Chu shows such a bipolar device

which forms the base region of SiGe and with carbon doping. See, for example, Fig. 4 of Chu. The Chu reference also shows such features as the vertical side wall of the isolation region (60) contacting the vertical side wall of the first emitter region (56). It is noted that this aligned configuration would also meet the limitation that the vertical side wall of the isolation region lies "over" the second emitter region (56d).

One skilled in the art would be motivated to combine these references in order to achieve the enhanced operating characteristics that the SiGe base region would afford the Kameyama device.

Allowable Subject Matter

Claims 18 and 25-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Wojciechowicz whose telephone number is (571) 272-1739. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Application/Control Number:
10/821,501
Art Unit: 2815

Page 4

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edward Wojciechowicz
Primary Examiner
Art Unit 2815

EW: ew